field diameter is specified as greater than 8μm (rather than 9μm as previously in those claims).

Claims 1 to 9 are pending in this application. Claims 1 and 3 to 9, stand rejected under 35 U.S.C. §102(b) as being anticipated by Wiedman (US 5,295,211), and Claims 1 and 2 stand rejected under 35 U.S.C. §102(e) as being anticipated by Brown (US 6,317,549).

The instant application relates to the design of optical fiber for use in an optical amplifier, namely so-called "gain fiber". Conventionally, optical amplifier gain fiber has a mode field diameter ("MFD") of around 4 to 6μm at 1550nm, as stated at page 4 lines 18 to 20 of the instant application.

The instant invention uses gain fiber with higher mode field diameter, in particular above 8μm, to reduce low frequency attenuation, but with a larger refractive index difference, giving rise to increased single mode cut-off frequency. The advantages of using this fiber design are clearly set out in the instant application.

Wiedman discloses gain fiber which has the conventional mode field diameter of around 4 to 6μm at 1550nm. Thus, column 1 line 59 discloses the gain fiber having a mode field diameter of 6.4μm at 1550nm. The passage referred to by the Examiner at column 1 lines 64-67 relates to the coupler 20 of Figure 1, and not to the gain fiber 10. Indeed, Wiedman is concerned with the problem of splice losses when splicing between telecommunications fibers (with large MFD) and gain fibers (with small MFD).

There is no disclosure or suggestion in Wiedman that the gain fiber should have a mode field diameter greater than 8μm. Indeed, there is no motivation in Wiedman to depart from conventional "small core diameter" (column 5 line 13) and "small MFD" (column 5 line 22-23) fiber for the amplifier itself.

Brown (US 6,317,549) discloses a fiber for use in an optical communication system "that is served by Erbium-doped amplifiers" (Abstract of Brown). Brown particularly relates to transmission fiber which has "negative dispersion with a low slope in the Erbium amplifier region" (column 2 lines 35-36). Brown does not relate to gain fibers for use in optical amplifiers, and the reference in Brown to Erbium-doped amplifiers is simply to indicate that the transmission wavelength of interest is 1530nm to 1565nm (column 1 lines 39 to 54).

There is accordingly also no disclosure or suggestion in Brown that a gain fiber should have a mode field diameter greater than 8μm. Again, there is no motivation in Brown to depart from conventional gain fiber.

The applicants respectfully request reconsideration of this application. In view of the above remarks, it is submitted that this application is in condition for allowance in its original form. Such action is therefore solicited.

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Respectfully submitted,

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Version with markings to show changes made

7. (once amended) An optical transmission system comprising a transmitting node, a receiving node and an optical fiber link between the nodes, wherein the link includes one or more amplifying repeaters, each comprising an amplifier having a doped fiber core and a cladding layer surrounding the core, the mode field diameter of the fiber being greater than [9] 8μm and the refractive index difference between the core and the cladding layer being selected such that the cut- off wavelength at which the fiber becomes single mode lies in the range 1000-1550nm.

9. (once amended) A method of designing an optical fiber comprising a core and cladding, for use in an optical amplifier, comprising the steps of:

selecting a core diameter such that the mode field diameter of the fiber is greater than [9] 8μm and such that low frequency attenuation is below desired limits;

selecting a refractive index difference between the core and the cladding layer such that the cut-off wavelength at which the fiber becomes single mode lies in the range 1000-1550nm and such that bending losses are below desired limits.